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CHEMIST

DECEMBER, 1939



VOLUME XVI, No. 9

DESERVING SELF-SERVICE

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THE YOUNG CHEMIST AND THE
GOVERNMENT SERVICE



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The CHEMIST

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VOLUME XVI

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THE AMERICAN INSTITUTE OF CHEMISTS

HOWARD S. NEIMAN, *Secretary*

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The American Institute of Chemists Recommends Civil Service Improvements

Recommendations for Federal Civil Service improvement were prepared by the Washington Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, approved by the National Council of the INSTITUTE, and sent to the Reed Committee for Civil Service Improvement, Washington, D. C. The Committee, under the chairmanship of Supreme Court Justice Reed, was created last February to report on methods of recruiting and examining personnel to fill the Government's highest positions. Hearings were held in October, preparatory to a report to the President. The positions under discussion included the professional group of lawyers, economists, scientists and technicians.



Deserving Self-Service

**An editorial reprinted through the courtesy of the Oil,
Paint and Drug Publishing Company**

It is practically axiomatic that business can do for itself and for the dependent public anything that needs to be done far better than this can be done by government. It is, however, an inescapable fact that business does not adequately exert itself for the doing of many things, the necessity and even the desirability of which is obvious.

One of these inadequately handled, inadequately regarded things is the readjustment of conditions and circumstances which are largely responsible for the continued existence of an alarmingly large volume of unemployment. This readjustment, of course, is the simple matter of furnishing employment; but the term, "simple," cannot appropriately be applied to the processes which it involves. Business is functioning at very little less than its peak performance of a decade ago—this does not apply to the nonproductive or parasitic operations to which, it must be admitted, many of the apparent results of the peak performance were attributable. But, business is functioning at a far less cost than that of a decade ago—not at a greater profit, however, for its unit earnings

have been reduced—and this lesser cost is in part reflected in the employment of something like five million less persons to perform almost the same volume of work.

Readjustment of the basic conditions and contributory circumstances would well have the concentrated attention of business, and should be freed from the handicaps now imposed by labor on one hand and by management on the other. Both these elements of business must get together in purpose and in endeavor to refit the business processes to the needs of all who are rightfully a part of the business organization. The inevitable result of their failure to do this is and will be a greater and greater extension of government-made work and other governmental relief measures.

These are things to be avoided—and they are avoidable. Evidence of the latter is offered by the work that is being done by the Chemist Advisory Council in the fitting of unemployed chemists and chemical engineers into the needs of industry and in the creation of new niches into which persons of such training can be placed. This is a sympathetic work; it is an inspiring work. Its inspiration alone should stimulate emulation in business as a whole. The spirit which the work represents, that of self-reliance and self-help, of the avoidance of leaning on government, should be a far more attractive stimulus.

It must be said, with regret, that the work of the Chemist Advisory Council is not adequately appreciated or adequately supported in the chemical industry as a whole nor in the other branches of industry which chemistry so ably and so essentially serves. There is room for the wisdom of such self-service to spread; there is every reason why it should spread widely. And the greatest reason is that this wisdom reaches to fundamentals, particularly to that basic independence of business which alone can check the inroads of government by closing the opportunities by which these progress.

The New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS cordially invites all who may be interested to attend its meeting on January 19, 1940, at The Chemists' Club, New York, N. Y., at eight o'clock. Dr. Walter S. Landis, vice-president of the American Cyanamid Company, will speak on "The Training of the Chemical Executive."

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The Young Chemist and the Government Service

The ninth of a series of articles on the opportunities for chemists in the government service

By Louis Marshall, F.A.I.C.

ANOTHER Act of Congress administered by the Food and Drug Administration is the Insecticide Act. It forbids interstate shipments of adulterated or misbranded insecticides and fungicides. It gives definite standards to which all lead arsenate pastes and all paris greens must conform. Paris green is a widely used insecticide. It appears on the market in various forms, but consists essentially of copper aceto-arsenite, $3\text{CuOAs}_2\text{O}_3 \cdot \text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$. All insecticides other than lead arsenate pastes and paris greens must bear upon every label a correct statement giving the name and the amount of each inert ingredient, or a statement declaring the percentage amount of each active ingredient. Insecticides other than lead arsenate and paris green must declare on their labels the total amount of arsenic present. The insecticide must not contain any substance which will injure the plant on which it is to be used.

In carrying out the provisions of this Act, it has been found that chemical analysis must be supplemented by practical tests. Accordingly, the Administration maintains testing farms in various parts of the country where the efficiency of these products against insects and fungi in their natural environment can be tested. The largest of these testing farms is located in Beltsville, Maryland. Here, about seven acres of farmland are planted with representative varieties of orchard fruits and berries. In addition, the farm contains deciduous and evergreen trees and shrubs cultivated for testing purposes. The insects needed for the experiments are obtained by their being naturally attracted to the vegetable gardens and greenhouse plants. They are therefore always available. In carrying out a practical test of an insecticide, the directions on the label of the product are closely followed. The particular form of plant life used in the experiment is, of course, the one for whose protection the particular insecticide has been designed. Observations are made as to the efficacy of the insecticide in repelling insects, and also as to its injurious effect, if any, on the plant. Those

products which are found incapable of fulfilling the claims made for them, are promptly withdrawn by seizure actions. The farm at Beltsville has a constant temperature room for the breeding of clothes moths, carpet beetles, and flies. These insects are used to test the capacity of disinfectants and other preparations designed to repel household insects. For the purpose of testing fungicides, for use against the fungus diseases of plants, practical experimental farms are maintained at Haddon Heights, New Jersey, Sodus, New York, and Corvallis, Oregon. At these places, the great array of fungicides which appear in interstate commerce, is given the practical test to determine whether or not the products measure up to the claims declared on the labels.

In one year, two thousand three hundred and eleven samples of insecticides, fungicides, and disinfectants were examined. As a result of this work, it was found necessary in one hundred and fifty-four cases to institute either seizure actions or criminal prosecutions of the offending manufacturers. Thus does the Administration help in the great and ceaseless warfare against those pests which menace the health and the economy of man; which infest the livestock, the farm, the orchard, and the home.

The Caustic Poison Act, for the enforcement of which the Administration is responsible, was designed for the protection of those who use caustic or corrosive substances in the home. It requires that these products, sold in containers for household use, bear conspicuous labels stating the common name of the substance, and the name and address of the manufacturer or distributor. The word, "Poison" in specified type, must be plainly and conspicuously displayed on the labels of these products which must also contain directions for treatment in case of accidental personal injury from the contents of the package. For purposes of the Act, twelve materials are specifically named and classified as dangerous caustic or corrosive substances. They are: Hydrochloric acid and any preparation containing, free HCl in a concentration of ten per cent or more.

(2) Sulphuric acid and any preparation containing free H_2SO_4 in a concentration of ten per cent or more.

(3) Nitric acid and any preparation containing free HNO_3 in a concentration of five per cent or more.

(4) Carbolic acid or phenol $\text{C}_6\text{H}_5\text{OH}$, and any preparation containing it in a concentration of five per cent or more.

(5) Oxalic acid and any preparation containing free $\text{H}_2\text{C}_2\text{O}_4$ in a concentration of ten per cent or more.

(6) Any salt of oxalic acid, and any preparation containing any such salt in a concentration of ten per cent or more.

(7) Acetic acid and any preparation containing free $\text{HC}_2\text{H}_3\text{O}_2$ in a concentration of twenty per cent or more.

(8) Hypochlorous acid, either free or combined and any preparation containing the same in a concentration so as to yield ten per cent or more by weight of available chlorine, excluding calx chlorinata, bleaching powder, and chloride of lime.

(9) Potassium hydroxide and any preparation containing free KOH in a concentration of ten per cent or more.

(10) Sodium hydroxide and any preparation containing free NaOH in a concentration of ten per cent or more.

(11) Silver nitrate or lunar caustic and any preparation containing AgNO_3 in a concentration of five per cent or more.

(12) Ammonia water and any preparation containing free NH_3 in a concentration of five per cent or more.

No unusual problems arise in the enforcement of this Act, and in one year only fourteen criminal or seizure actions were necessary.

The Naval Stores Act requires that all rosin and turpentine moving in interstate or foreign commerce, be sold under the standards defined by the Act. The application of the words "Turpentine", or "rosin" to products other than these United States Standard Naval Stores is forbidden. The Department of Agriculture makes up the standard rosin types and establishes new standards when the interests of the trade require that this be done.

These Naval Stores are of vast commercial importance in the paint and varnish industries and in other industries as well, and the standardization of the different kinds and qualities is a recognized necessity. In carrying out the provisions of the Act, only two criminal prosecutions in one year were instituted, both terminating in pleas of guilty. The Act also has a service clause authorizing the Department of Agriculture to employ experts to examine and grade naval stores for commercial firms and to issue certificates showing the analysis and grade of the products. A monetary charge, covering the actual cost, is made for this service. In the course of one year, a total of 133, 649 barrels of rosin, and 1,700 drums of turpentine were inspected, sampled, and graded for commercial interests. The work of classifying these products is done by men who have had considerable practical experience in this field. They are known as Naval Stores Classifiers. The Division to which they are assigned is headed by a principal chemist.

The Tea Act, which first became a law in 1883, authorizes the Government to set up standards of quality and purity for imported tea. It provides for a board of tea experts appointed each year by the Secretary of Agriculture. The Board sets the standards of quality, purity, and fitness for consumption of the teas imported into the United States. Before the passage of the Act, the United States was a sort of a dumping ground for poor tea, the absence of standards making it possible to ship any quality of tea into the country. Now, however, under the authority of the Act, the Administration has tea examiners stationed at the various ports of entry. These examiners see to it that any shipment of tea which does not conform with the standards is refused entry into the country. As a result of this enforcement work, tea exporters throughout the world no longer use the United States as a dumping ground for their worst products. Of a total of 84,190,871 pounds of tea which were examined in one year, only 70,741 pounds or .084 per cent. were rejected. Chemical examination of tea is not as important as the practical inspection work by means of which experts are able to determine the quality of the product, principally by its taste and appearance.

The Import Milk Act authorizes the Secretary of Agriculture to issue permits to commercial firms for the importation of milk and cream. It must be shown that the cows producing the milk are healthy and free from bovine tuberculosis. The farm from which the milk comes and the plant handling it must both have a satisfactory rating from the standpoint of sanitation. The Act was passed in 1927 when shipments of milk and cream, especially from Canada, were very heavy. At the present time the volume of imported milk and cream is not so great, and the enforcement work is done principally by bacteriologists and inspectors who make sure that the milk and cream meet the standards for bacterial count set by the Act, and who make sure that the temperature has been properly controlled.

The total expenditures of the Food and Drug Administration for the fiscal year 1938 amounted to \$2,178,199. The appropriation certainly seems small when compared, for instance, with the more than fifty million dollars allotted to the Police Department of New York City for a single year. However, with this small sum, the Administration has established a magnificent record in the intelligent enforcement of laws which vitally affect the health and well-being of our nation. It has presented to the American public a supply of foods

and drugs which, from the standpoint of quality, is probably unsurpassed anywhere in the world. It has protected honest manufacturers from enforced competition with those who sell adulterated and misbranded goods. In addition, it has carried out some very fine research work on matters concerned with foods and drugs. This good work must continue and if possible, expand. An increase in its appropriations would enable the Administration to increase its personnel and devote still more attention to enforcement and research work. For example, due to its limited staff of inspectors, and with the greatest effort, it was found possible to examine less than 200,000 cans of cream, whereas the total annual movement of cream amounts to about 80,000,000 cans.

At the present time, the Food and Drug Administration employs one hundred and ninety eight chemists in its laboratories throughout the country. These chemists are distributed among the grades as follows: one head chemist, seven principal chemists, seventeen senior chemists, eighteen chemists, forty-four associate chemists, sixty-one assistant chemists, and fifty junior chemists. In addition, a great many of the Administration's field inspectors are professional chemists, appointed from the regular Civil Service eligible lists. These men are not counted in the above total. In addition, there are many employees doing work of an ancillary type who hold ratings in the various grades of the subprofessional service.

The Food and Drugs Act is now over thirty years of age. More than a generation has gone by since that epoch-making day of June 30, 1906, when the national Government first committed itself to a policy of protection against "adulterated or misbranded, or poisonous, or deleterious foods, drugs, medicines, and liquors". That generation has witnessed more far-reaching changes in not only the methods of manufacture and selling of foods, drugs, and related products, but also in the consuming habits of the nation, than almost any other. Different conditions made their appearances. Unforseeable abuses crept into the picture, and in order to meet them, it was generally recognized that the old and revered act of 1906 had served its time. It was necessary that it give way to a more modern statute, and after a slow and difficult passage through the legislative mill, the Federal Food, Drug, and Cosmetic Act was passed. On June 25, 1938, it received the approval of the President. The Act delegates to the Food and

Drug Administration more authority to protect the health and well-being of the American people, and embodies the results of the experience gained in administering the old law.

The necessity for changes could best be illustrated by citing certain occurrences which the former law was helpless to prevent. Not long ago, twelve California women were stricken blind after using a certain fat-reducing preparation containing dinitrophenol. This highly dangerous drug does have the effect of reducing weight, but it may also cause blindness. It may damage the heart and other vital organs of the body, and yet the Food and Drug Administration was powerless to interfere with its sale. The reason was that a drug was defined in the Food and Drugs Act of 1906 as a preparation recognized in the *United States Pharmacopoeia* or the *National Formulary*, or else a product intended for the cure, mitigation, or prevention of disease. A fat reducing preparation of which the active principle is dinitrophenol did not come under any of these headings. The compound is listed in neither the *Pharmacopoeia* nor the *Formulary*. Moreover, the preparation containing it was not held out to be efficacious in preventing, mitigating, or curing a disease. It was advertised as a slenderizing preparation, that is, as an article intended to affect bodily structure. As such, it did not come within the scope of the old law, and therefore dangerous fat-reducing preparations containing dinitrophenol continued to be sold.

In 1933, the Government brought to trial a man who was selling a "remedy" for diabetes. The preparation was made from an extract of the common "horse-tail" weed, but its lowly origin did not prevent the manufacturer from charging nine dollars a pint for the product. During the trial, the testimony of medical experts was offered to the effect that the preparation was worthless. It was brought out that some of the persons who had written testimonials extolling the virtues of this diabetes "remedy" had themselves died of diabetes as their death certificates showed. It was, in fact, proven conclusively that the product failed utterly to perform its declared function and that its sale constituted a pitiful imposition upon those unfortunate diabetics who had been taken in by its claims. Yet the jury which tried the case was convinced that it was necessary to hand in a verdict acquitting the manufacturer. The reason was that the old law compelled the Government to prove not only that the product was incapable of fulfilling the claims declared on the label, but it had also to prove that the manufacturer *knew* that this was so. It was easy to meet the

first requirement. The second one, however, was often impossible to fulfill, and the unscrupulous did not fail to take advantage of this fact.

As these stories became more generally known, the voice of the American people demanding the passage of a measure which would put an end to the intolerable abuses, began to be heard. As stated before, the Congress of the United States, after years of consideration, passed a substitute for the Food and Drugs Act of 1906. The bill was signed by the President on June 25, 1938, and most of its provisions became effective one year from that date.

The new law, known as the Federal Food, Drug, and Cosmetic Act is designed "to prohibit the movement in interstate commerce of adulterated and misbranded food, drugs, devices and cosmetics, and for other purposes". It is a far more comprehensive document than the act of 1906, and contains many provisions which clearly reflect the results of the experience gained in administering the old law.

The Act of 1938, for example, gives the Administration control over such preparations as the dangerous fat-reducing compound containing dinitrophenol because it provides that any article (except food) intended to affect the structure or any function of the body is, for purposes of the Act, a drug. A fat-reducing compound falls under this heading and is therefore liable to seizure, if dangerous to health. It is expected that this provision will prevent the recurrence of the tragedies which resulted when products containing dinitrophenol were sold freely.

The new law will probably be far more effective than the old one in driving from the market those fake remedies for real diseases. It is not necessary for the Government to prove that false claims of curative effect on the labels of patent medicines were willfully made. If it can be demonstrated that a product is incapable of fulfilling the claims declared on its label, that is sufficient proof of the crime of misbranding. Under this regulation, the sale of a fraudulent diabetes remedy will not be permitted to continue simply because the Government finds it impossible to prove that the producer knew that his claims had no basis in truth.

One of the most important innovations of the new law is the control which it provides over the cosmetic industry. The Act defines cosmetics realistically, but with a slight touch of romance, as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance".

Soap is specifically excluded from the definition. Under this law, the interstate movement of any cosmetic which contains a poisonous or deleterious substance; or which consists of a filthy, decomposed, or putrid substance; or which is misbranded, is prohibited.

The enforcement of this section of the Act will eliminate such products as depilatories which contain thallium acetate, and eyelash dyes containing para-phenylenediamine. The Federal Food, Drug, and Cosmetic Act provided that the section prohibiting the interstate movement of cosmetics containing poisonous or deleterious substances should become effective immediately after its approval, and on July 15, 1938, the first seizure of a dangerous cosmetic was made. The product, which was sold as a dye for eyelashes, was alleged by the Government to be adulterated since it contained the deleterious substance para-phenylenediamine; the compound which had already caused numerous cases of severe eye injury or total blindness.

Another noteworthy provision of the new law is the authority which it confers upon the Secretary of Agriculture to establish standards of identity for foodstuffs. These standards may be regarded as specifications for the various foodstuffs, and any product may be seized as misbranded, if it does not conform to the specifications of that which it purports to be.

A few other innovations of the Act of 1938 are: Its prohibition of interstate traffic in confectionery containing metallic trinkets and other inedible substances; its control of drugs used in the diagnosis of disease, and of therapeutic devices; and its prohibition of traffic in new drugs which have been inadequately tested to prove that they are safe for use. The latter provision will have its effect in preventing the recurrence of the tragedies caused not long ago by the drug, "elixir sulfanilamide", containing the poison diethylene glycol and employed as an agent against infection.

The Federal Food, Drug, and Cosmetic Act of 1938 undoubtedly provides the basic machinery for a vastly effective organization protecting the physical health and economic interests of American consumers. How effective its work will be, will depend in great measure upon the appropriations made available to the Food and Drug Administration. The enforcement of the old law taxed the capacity of this organization to the utmost. The greatly added responsibilities with which it has been charged by the new statute, obviously make it necessary to call for the services of additional chemists, inspectors, and other technical men. These experts are available and ready to give their services to the Government. If, however, funds are lacking for their employment, the full

and effective enforcement of the Act will never be realized. The Food and Drug Administration has gained a well deserved reputation for the intelligent and impartial enforcement of the laws placed under its jurisdiction. Its activities protect consumers against products which are dangerous to health, and against products which are economic cheats. Important also is the fact that at the same time ethical business is defended against dishonest forms of competition.

It required much effort and a great deal of time to pass the new law which has such fine potentialities for effectively accomplishing these ends. If its complete enforcement were rendered impossible by insufficient financial support, a great mistake would have been committed.

The expenditures of the Administration for the fiscal year 1938 amounted to about \$2,000,000. This sum, with which it carried out all of its indispensable services, represents less than two cents per year for each inhabitant of the United States. There would surely be little opposition and much approbation, if the investment which brings such large returns to all the people, were increased.

Joseph F. X. Harold

It is with deep regret that THE AMERICAN INSTITUTE OF CHEMISTS records the death of Joseph F. X. Harold on January 3, 1940, in New York, N. Y., following an illness of three months. He was born in Philadelphia on August 11, 1874. He studied at La Salle College and the University of Pennsylvania, obtaining the Ph.D. degree. From 1899 to 1906 he served as professor of chemistry at the Philadelphia Textile School, then directed the American Laboratories of the French Dye and Chemical Syndicate for two years, returning to the Philadelphia Textile School to work on the certification of food colors. From 1911 to the present, he was consultant to the William Grosvenor Laboratories, New York, N. Y. In 1920, Dr. Harold went to Paris to act as technical adviser to the Reparations Commission and to the Department of State on dyestuffs and pharmaceuticals. He was the author of numerous monographs on textile or dyestuff subjects, and held many patents in these fields.

The welfare of the chemical profession was always of deep interest to him. In a talk advocating licensing as a step forward to achieve professional solidarity, he said,

"Let me tell you what a chemist really is—to inspire you to a better realization of your own position in the community, and, what is

perhaps more needed, a realization of the worth of your brother chemist.

"Deep in the uttermost roots of the universe he finds his work and play. His is the mind that finds the key to the secrets of rock, and leaf, and cell, and star. Everything that is, is within his ken, and is the better for his touch. All sciences rest upon him; to all arts he gives their tools and stuffs. The instant Chaos felt the urge to form there was matter for his inquiry; and when at last the glorious globe blows up, some note-taking chemist, with nose and pencil equally alert will fill his book with observations for the approval of the Great Schoolmaster, the last schoolboy to go lingeringly away from the old universe, conquering fear by the habit of looking and learning.

"Deep in the secrets of basic things, the chemist humbly plays the rôle of the creator. He picks apart and puts together, rehearsing as in a game, the building of the Cosmos in miniature; reaching out, as it were, to shake the hand of the Great Artificer himself, a brother in the heritage of elemental facts denied to other searchers.

"And yet these divine kings, who can command of the god Vulcan his fires, and of Boreas his cold, have in the community the definiteness of a fog bank . . . As a craft, they have the solidarity of water in a sieve, the group consciousness of a pack of balloons, the fraternal spirit of a Geneva Conference, and the coöperation of the two Portlands."

"The licensing system is like an association ruling in a race, and controlling admissions. Men rise to the top by excellence, certainly, but also by restriction of unjust competition. A leader in a profession must be a leader as a member of that profession, not just a born leader who could not fail to attain financial success in anything."

His warm human qualities of generosity and helpfulness endeared Dr. Harold to his friends, who admired equally well his breadth of cultural knowledge, his brilliance as a speaker, and his keen wit and humor. He was the creator of many delightful "quotable quotes", one of which was his reply to a boaster who asked, "Who are you?" Dr. Harold replied instantly, "Sir, I am the guy that the man you hoped to be thinks he is!"

Dr. Harold became a member of THE AMERICAN INSTITUTE OF CHEMISTS in 1929, and served as treasurer from 1930 to 1932. He was also a member of the American Chemical Society, the American Association of Textile Chemists and Colorists, the Association of Textile Technologists, and the Technical Association of the Fur Industry.



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November Meeting

The one-hundred and sixty-fifth meeting of the Council of THE AMERICAN INSTITUTE OF CHEMISTS was held in The Chemists' Club, 52 East 41st Street, New York, N. Y., at 6:30 P. M. on Tuesday, November 21, 1939.

President Robert J. Moore presided. The following officers and councilors were present: Messrs: R. A. Baker, M. L. Crossley, B. H. Knight, R. J. Moore, H. S. Neiman, W. T. Read, N. A. Shepard and F. D. Snell. Dr. W. D. Turner, Mr. M. R. Bhagwat and Miss V. F. Kimball were present.

The minutes of the preceding meeting were approved.

The Treasurer's report, showing a bank balance, as of November 20, 1939, of \$3632.77, with bills payable of \$359.98, was read and accepted.

The Secretary read a letter from the Washington Chapter thanking the INSTITUTE for sending recommendations to the Reed Committee for Civil Service Revision.

The Secretary read a letter from Benjamin Janer regarding the following section in the New York State Drug Control Act; "All manufacturers domiciled in the state must have a licensed pharmacist or chemist in supervision. The term 'Chemist' may be defined by the Board of Regents," and the Secre-

tary was requested to send copies of this letter to each member of the Committee on Licensing.

The Secretary read a letter from the Association of Municipal Chemists of the City of New York requesting information about the bill to license chemists and offering coöperation.

The Secretary read letters from Dr. H. R. Moody and Dr. E. E. Reid with reference to their election to life membership.

Mr. Bhagwat reported for the Chemist Advisory Council, which has 1244 registrations, fifty per cent of whom had more than two years of experience. 215 unemployed have been placed.

Upon motion made and seconded, the following new members were elected:

FELLOWS

Campbell, Clyde H.

(1939), 801-803 Renshaw Building, Pittsburgh, Penna.

Conner, Robert T.

(1939), *Instructor*, Columbia University, New York, N. Y.

Ebert, Joseph

(1939), *President*, The Farastan Company, 135 South 11th Street, Philadelphia, Penna.

Forbis, Homer L.

(1939), *Technical Sales Representative*, Stanco, Inc., 1 Park Avenue, New York, N. Y.

Goulden, H. D.

(1939), *General Manager*, Jacqueline Cochran Laboratories, 1203 Chandler Avenue, Roselle, N. J.

Killian, John A.

(1939), *Professor of Biochemistry*, N. Y. Post Graduate Medical School, 303 East 20th Street, New York, New York.

Leach, John M.

(1939), *Patent Attorney*, Sylvania Industrial Corporation, 122 East 42nd Street, New York, N. Y.

Lieber, Eugene

(1939), *Director of Research*, Parafflow Laboratory, Standard Oil Development Company, Linden, N. J.

Lott, W. A.

(1939), *In charge of Research Group*, Squibb Institute for Medical Research, New Brunswick, N. J.

Maurer, George

(1939), *Research Chemist*, E. I. du Pont de Nemours and Company, Wilmington, Del.

Sanders, J. P.

(1939), P. O. Box 201, Rahway, N. J.

Sherman, Clarence S.

(1939), *Instructor*, Cooper Union, New York, N. Y.

Summers, Donald B.

(1939), *Consulting Chemist*, 624 Ridgewood Road, Maplewood, N. J.

Whitner, Thomas C.

(1939), Carleton Ellis, Montclair, New Jersey.

Dr. Read reported progress for the Committee on Membership.

Upon motion made and seconded, the sum of \$50 was appropriated for a booth at the Seventeenth Exposition of Chemical Industries, to be held December fourth to ninth.

Dr. Snell reported for the Committee on Licensing.

Upon motion made and seconded, the next meeting of the Council was scheduled for December 12, 1939.

There being no further business, adjournment was taken.

CHAPTERS

New York

Chairman, Harry G. Lindwall

Vice-Chairman, Beverly L. Clarke

Secretary-treasurer, D. H. Jackson

17 John Street

New York, N. Y.

Council Representative, Charles A. Marlies

A meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS will be held on Friday, January 19, 1940, at The Chemists' Club, New York, N. Y., at eight o'clock. The speaker will be Dr. Walter S. Landis, vice-

president of The American Cyanamid Company, who will discuss "The Training of the Chemical Executive." An informal dinner will precede the meeting. Those interested are invited to attend the meeting.

Pennsylvania

Chairman, Walter L. Obold

Vice-chairman, A. C. Angus

Secretary-treasurer, Harry C. Winter

The Biochemical Research Foundation

133 South 36th Street

Philadelphia, Penna.

Council Representative, Gilbert E. Seil

News Reporter to THE CHEMIST, Kenneth A. Shull



DR. WALTER L. OBOLD
Chairman, Pennsylvania Chapter

A MEETING of the Pennsylvania Chapter was held on Tuesday, November twenty-first at the Christian Association Building, Philadelphia. A short business session followed an informal dinner. At this time Dr. Gilbert E. Seil reported for the National Council.

The speaker for the evening was Dr. Walter L. Obold, F.A.I.C., Head of the Department of Biological Sciences at Drexel Institute of Technology and present Chairman of the Pennsylvania Chapter; his subject was germicides.

The substance of Dr. Obold's talk follows: There are about twelve hundred species of bacteria, made up of bacilli, cocci, and spirilla. Of these

twenty-five per cent produce disease in man directly and four per cent infect animals which in turn give the disease to man.

Bacteria in the vegetative stage consist of about seventy-five per cent water. On becoming dehydrated, they pass into a protective or resting stage and are then known as spores. In this condition they are resistant to heat and to germicidal action. Whereas normally a few minutes of boiling will destroy all pathogenic organisms, several hours are necessary to completely destroy spores.

Much confusion exists with regard to definitions of the various terms used in describing the destroying or rendering harmless of bacteria. Any substance which kills germs may be called a germicide. An antiseptic may either kill or prevent bacterial growth. Disinfectants kill pathogenic bacteria, whereas sterilization destroys all organisms. A term which is finding increasing favor in designating substances which inhibit growth of bacteria is bacteriostatic. Chemicals, such as sulfur dioxide, which are added to food to inhibit growth of bacteria, are

known as preservatives.

Many natural agencies contribute to the destruction of bacteria. Among these are light, time, dilution, and unfavorable temperature. The man-made germicides are phenols, cresols, dyes (selective activity), permanganates, benzoates, alkalies (one per cent sodium hydroxide kills in five minutes), halogens, chloramine, alcohol (fifty per cent dilution best), certain soaps, bichloride of mercury, silver nitrate, etc. Each of these may be given a phenol value which simply compares it with phenol with a rating of one. It is interesting to note that crude carbolic acid has a higher phenol coefficient than pure phenol. Contrary to popular belief, germicides do not kill immediately, so that it is better to speak of a death period rather than of a death point.

No ideal germicide has as yet been found. If one is ever discovered, it will be non poisonous, non corrosive, odorless, miscible with water, cheap, and of course able to kill immediately.

A very interesting and lively discussion followed Dr. Obold's talk.

Kenneth E. Shull

Niagara

Chairman, Maurice C. Taylor

Vice-chairman, F. W. Koethen

Secretary-treasurer, Alvin F. Shepard
90 Courier Boulevard
Kenmore, N. Y.

News Reporter to THE CHEMIST, Margaret C. Swisher

Council Representative, Arthur W. Burwell

Carl H. Rasch, Alternate

Washington

President, Frank O. Lundstrom

Vice-president, Albin H. Warth

Treasurer, Philip A. Wright

Secretary, Martin Leatherman

9 Quincy Avenue, Hyattsville, Md.

News Reporter to THE CHEMIST, Edward F. Snyder

Council Representative, Albin H. Warth

Executive Committee

J. R. Adams	H. C. Fuller	N. W. Matthews	W. H. Ross
M. S. Anderson	L. R. Heiss	J. W. McBurney	E. F. Snyder
A. P. Bradshaw	J. H. Hibben	A. L. Mehring	J. J. Stubbs
R. T. K. Cornwell	B. Makower	R. M. Mehurin	E. K. Ventre
P. R. Dawson	L. N. Markwood	A. R. Merz	C. W. Whittaker
R. B. Deemer		W. M. Noble	J. F. Williams

THE Washington, D. C., Chapter held a regular meeting at the Wardman Park Hotel, Wednesday, November 29, 1939.

President Lundstrom, presiding, reviewed the aims and objectives for the year, as outlined at the executive committee meeting of October 27, 1939. These are listed under six heads:

(1) We must hold our present members and stress payment of dues.

(2) We must secure new members, especially to offset those who will leave Washington for Regional Laboratories.

(a) Membership drive. Each member obtain a new member!

(3) We must have interesting programs.

(a) Types of programs (each meeting an outstanding one!)

(b) Speakers.

(1) Outstanding, nationally known.

(2) Officers from national organization.

(3) Suggestions from members.

(c) Place of meeting.

(d) Attendance.

(1) Telephone committee.

(2) Greeting of guests.

(3) Best time to send out cards?

(e) Publicity.

(1) Student medal awards.

(2) Newspaper advertising.

(3) Bulletin board.

(4) Sending out copies of THE CHEMIST.

(4) Issues and objectives.

(a) Civil Service Improvement Committee to contact various professional organizations.

(b) Industrial, consulting and educational improvement.

(5) Relations with the national organization.

(a) Possibility of national meeting in Washington.

(b) Speaker from national organization for one of our meetings.

(c) Announcement card of all our meetings should be sent to National Secretary and to National President.

(d) Chemist Advisory Council.

(6) Early consideration of next year's officers.

We must have workers. Officers who will realize that the INSTITUTE is only an instrument for carrying

out that which we wish to accomplish. As an instrument it can do nothing by itself. The amount accomplished in our case will be in direct proportion to the amount of thought and work directed to INSTITUTE affairs.

As an item in the membership drive it was announced that two new members and two likely prospects had already been obtained by President Lundstrom and Dr. J. J. Stubbs on the occasion of a recent visit to the Bureau of Standards.

Mr. Paul D. Boone, the speaker of the evening, was then introduced. Mr. Boone is a well-known patent attorney and chemical patent specialist, former patent examiner in the U. S. Patent Office, and former chemist in the Department of Agriculture. His subject was "The Value of Patent Protection to the Chemist and to the Chemical Industry." A digest of the speech follows.

The early beginnings of the patent system in this country were the colonial monopolies in Massachusetts and Connecticut. Connecticut remained until recent times the virtual leader among the states in *per capita* of invention. Delaware has more recently assumed the leadership, through becoming a sort of chemical headquarters.

The inventor in the early days of the patent system had little book-learning but was ingenious and possessed a decided mechanical bent. As society grew more complex, care and organization supplanted a rather hit-or-miss reliance upon individual and isolated ingenuity. Research became the backbone of leading industries, particularly of chemical industries. An index to the increase in patent activity is found in the number of patent attorneys associated with a chemical organization. As an in-

stance, du Pont had seven patent attorneys in 1922; in 1939 it had about forty.

The advantages of a patent to a large organization are self-protection and a permanent competitive advantage. Individuals may obtain these and other advantages through patent protection. A small business man may pierce the armor of a larger competitor with the spearhead of invention. The spark of ingenuity may arise in small as well as in large organizations. Patent protection is an accepted property right and even in universities and other quarters, sometimes considered remote from the business world, the importance and advantage of patent protection are now recognized.

There are by-product advantages in patent protection. Patents are themselves important literature to be carefully surveyed in prosecuting research. Patents stimulate research and improvement begets improvement.

Mr. Boone indicated that there were many points in this interesting subject which he would have wished to enlarge upon, had time permitted. The discussion which followed the conclusion of the address testified to the interest of all those present.

THE Washington Chapter held its first luncheon of the season on Tuesday, October twenty-fourth, in the Department of Agriculture.

As guest speaker, Colonel Haig Shekerjian, Chemical Warfare Service, U. S. Army, spoke on the timely topic, "Chemical Warfare in National Defense." Colonel Shekerjian discussed some of the toxic gases and toxic smokes used in the World War, their characteristics, and the methods of dispersing toxic smokes. The dual rôle

of a non-lethal gas such as tear gas for military purposes as well as civil disturbances was also described. A discussion of gas mask improvements and protection for military and industrial purposes and the advantages of

continued research marked the conclusion of a most interesting talk.

Following the talk a short period was devoted to questions and answers. About fifty members and guests were present.
—E. F. Snyder

NORTHERN LIGHTS

By Howard W. Post, F.A.I.C.

Canada's industrial organization is winging into line in the present war with smartness and efficiency. Witness the setting up of official agencies with liaison powers between Canadian industry and purchasing missions from other sections of the Empire and purchasing agents from within the country itself. The information is taken from *Canadian Chemistry and Process Industries* of a recent date.

"The War Supply Board . . . was constituted on November 1st . . . The duties of the Board involve the organization of resources and sources of supply for the production of munitions and supplies and for the carrying out of defence projects and the placing of orders for both the Government of Canada and for the British Purchasing Mission in Canada.

"The Wartime Prices and Trades Board . . . was established 'to provide safeguards under war conditions against any undue enhancement in the price of food, fuel, and other necessities of life and to ensure an adequate supply and equitable distribution of such commodities.' The Board is endowed with very far-reaching powers, designed to provide it with the necessary authority to ensure that its objects may be obtained.

"A Fertilizer Supply Committee, formed as a sub-committee of the Agricultural Supplies Committee, is under the Chairmanship of G. S. Peart,

Plant Products Division, Production Service, Department of Agriculture. Mr. Peart also heads another committee known as the Pesticides Committee, also under the same Agricultural supervision."

The article continues noting that progress is being made along the line of promoting production of such materials as copper sulfate and arsenicals, looking to Dominion independence as far as these items are concerned.

With regard to industrial conditions since September first, a glimpse at certain activities will undoubtedly prove interesting.

"Manufacturing production recorded considerable expansion, the index averaging 112.1 against 104.4. Flour production in the first eight months amounted to 9.3 million barrels, against 7.5 million, a gain of no less than twenty-three per cent. The manufacture of sugar was nearly maintained, the recession being limited to one per cent. The meat-packing industry was slightly more active. The release of cigarettes amounted to 5,275 million, recording a gain of two per cent. The output of leather boots and shoes during the first eight months rose from 13.4 million pairs to 14.1 million. The cotton textile mills were more active, as the consumption of raw cotton rose five per cent to 85.5 million pounds."

BOOKS

CHEMICAL PIONEERS, by Williams Haynes, publisher of *Chemical Industries*. D. Van Nostrand Company, Inc., New York, 1939. 288 pp. 13.4 x 19 cm. \$2.50.

"Hacking a wagon trail through the primeval forest, spanning the little streams with neatly laid logs, filling the marshy hollows with stones and brushwood, the pioneer worked his way ever westward. During the past century he crossed the Great Plains; struggled through the heat and dust of the deserts; toiled up over the passes of the Rockies; and in the end reached the Golden Gate. He conquered a continent.

"Transferred from mine and farm to the industrial scene, his familiar figure serves as a perfectly fitting pattern for the pioneer American chemical manufacturers.

"They, too, were rugged men of boundless courage and undaunted determination. They, also, built new roads and broke virgin soil. They also conquered a continent. With their bare hands they laid down the foundations of that great industry which in our day is fast replacing a mechanical economy based upon coal and iron by a new chemical economy of alloys and plastics and all sorts of new synthetic materials. . . .

"And so, it has seemed well worth

while to tell the life-stories of the men who founded our chemical industry." Such is the author's vivid picture of the task he set out to do, and that task has been well accomplished.

In the first volume of this story of the rise, growth, and development of the American Chemical Industry, the author has included interesting and informative biographical sketches of John Winthrop, Jr., George D. Rosengarten, Martin Kalbfleisch, Alexander Cochrane, James Jay Mapes, Eugene R. Grasselli, George T. Lewis, Lucien C. Warner, Edward Mallinckrodt, August Klipstein, E. C. Klipstein, Martin Dennis, Jacob Hasslacher, John F. Queeny, Frank S. Washburn, and Herbert H. Dow. All of which should represent more than mere names to members of the chemical profession and those who care to understand and appreciate the significance of the chemical industries to our American standard of living.

The book is well illustrated by the use of sixty full page cuts, contains a nine-page index, and presents for the first time an authentic picture of the founding of the American chemical industries. This volume should be particularly useful to members of the teaching profession who wish to season chemistry with a touch of real life.

—Ed. F. Degering, F.A.I.C.

The American Institute of the City of New York has just published its revised booklet, "How to Organize a Science Club", which includes a brief summary of the aims and purposes of this nationwide organization serving young persons from twelve to eighteen years of age who have in common a major interest in science.

The roster of THE AMERICAN INSTITUTE OF CHEMISTS will appear in the April, 1940, issue of THE CHEMIST, instead of in the January issue, as previously announced. Members of the INSTITUTE are requested to see that any changes of business address or position are reported to the Secretary promptly, so that roster listings may be correct.

Chemical References

President Robert J. Moore sends us the following clipping, taken from *Chemistry and Industry* (London):

CORRESPONDENCE

COMMAS, CASES, AND CHEMISTS

SIR,—Thanks for your very readable articles on style, but we are more at home amongst references such as:—

"Atom (up Guards and —), see :—'Wellington,' (Duke of—)."

"Lead (pencils), 21; ditto (Kindly Light), 83."

We would rather *determine* than *write* a composition, now, sympathizing with the centipede:—

"... who was happy, quite,
Until the toad, for fun, said—
'Pray, which leg goes after which?'
Which wrought his mind to such
a pitch

He lay distracted, in a ditch,
Considering how to run."

I am, Sir, etc.

KRYPTARGON

Middlesex

Oct. 24, 1939

[Our esteemed correspondent might have added to his cross references "Wellington, see Boots," and "Boots, see Cash Chemists." How far the chain reaction could be continued we do not know. It is said that a catalogue of books included:

Mill on Political Economy.

" " the Floss.

A book on law had in the index the reference "Mr. Justice Best, his great mind. Page 143." On page 143 was found: "Mr. Justice Best said he had a great mind to convict the prisoner." Our correspondence column shows that the chemist, although on learning he is bent, has yet a witty mind.—Ed.]

L'Avantage de la Science

(a translation from *La Fontaine*)

Book VIII, No. XIX

A difference 'twixt two townsmen burned
(You'll understand the hitch)
The one was poor, but very learned,
The other dull, but rich.
The rich man, arrogant and proud,
Maintained that men of lore
Should form a mute admiring crowd
Within his ample door.

(How stupid! For who honors wealth,
Especially if obtained by stealth?)

"Friend", said the rich man to the sage,
"You think you're something fine.
Brings endless reading, page by page,
Your family cake and wine?
You stop at cheap third-rate hotels,
Wear summer clothes in frigid spells;
'Your shadow is your only servant.
Economists, who are observant,
Say the Republic cannot live
On those who nothing spend or give.
We spenders are the ones who keep
The wheels of commerce turning;
The artist, merchant, jeweler leap
Whene'er we have a yearning.
And when we are inclined to flirt,
We pay who makes—and wears—the skirt.
As for your boring stupid books,
We overpay you—more than cooks."

To this tirade, crude and absurd,
The savant answered not a word.
But Fate, satirical, then spoke:
Homeless, War left both men—and broke.
From land to land they wandered far.
The sage was welcome ever.
The other found no door ajar,
Despite his wild endeavor.

Thus Fate announced to all the earth:
"Let donkeys bray—brain has its worth."

—Jerome Alexander, F.A.I.C.

THE SCIENCE ANGLER

Kenneth E. Shull, J.A.I.C.

There are many arguments in favor of mechanical dishwashing over washing by hand. Not least important of these is the improved sanitary quality of the finished articles. Results show that the increased effectiveness in bacterial removal by the mechanical method is due to a mechanical washing-away action, not to the higher water temperature nor to the germicidal action of the soap, as is generally believed.



Talk about applied mathematics! One young admirer of figures presented to the American Mathematical Society pages of equations showing what happens when one rotates a spoon in a cup of coffee. He demonstrated that a single stir carries each drop of coffee to some new position in the cup (probable outside if the contents are stirred too vigorously); if it is stirred repeatedly it is almost a certainty that eventually each drop of coffee will be adjacent to a drop of cream.

Too deep for us.



We may not all be color blind, but it appears as though we are blind to the proper colors to use for industrial safety.

It is common practice to use red for designating fire exits; yet green is the color recommended by the National Fire Protection Association as being best for this purpose—and rightly so. Is it not usually an infraction of the law to “go through a red light”?

Have you had your daily quota of sandy slime from the bottom of the Dead Sea? Recent investigations have disclosed the presence of a yellow pigment, somehow related to vitamin B₂, in the bottom ooze.

This is just another instance of nature's “keeping up” with the synthetic organic chemist.



Every student of science is taught that water doesn't behave according to Hoyle. When it freezes, for example, the resulting ice is actually lighter than the liquid from which it is formed. However, this is true only under low pressures, as has been shown recently by Professor Bridgeman. When the pressure reaches the neighborhood of 50,000 atmospheres, ice becomes heavier than water and melts with an increase in volume just as one would normally expect it to.



An interesting series of pictorial pages, depicting the romance of asphalt, has appeared in the last few issues of *Witcombings*.

In the year B. C. 2800 the Japanese were using this product as a cement for the construction of gutters; and the mortar used in building the famous Tower of Babel in 2000 B. C. consisted of asphalt.

As a medicant, asphalt was used in very early times. Pliny described its virtues in the treatment of boils, coughs, blindness, epilepsy, and gout. Today in Syria the natives regard the odor of hot, liquid asphalt as a sure cure for head colds.

CHEMISTS

Perkin Medal

The thirty-fourth impression of the Perkin Medal will be presented to Dr. Charles M. A. Stine, director of research and vice president of E. I. du Pont de Nemours and Company, at a joint meeting of the Society of Chemical Industry, American Chemical Society, American Institute of Chemical Engineers, the Electrochemical Society and Société de Chimie Industrielle, on January 12, 1940. The medal is awarded annually for valuable work in applied chemistry. Dr. Wallace P. Cohoe, F.A.I.C., Chairman of the American Section, will preside over the meeting. The program will commence with a commemoration of former medallists by Dr. Cohoe. This will be followed by a talk on the life and accomplishments of the medallist by Dr. Harrison E. Howe, editor of *Industrial and Engineering Chemistry*. After the presentation of the medal by Professor Marston T. Bogert, F.A.I.C., senior past president of the Society, Dr. Stine will give the medal address entitled "The Rise of the Organic Chemical Industry in the United States". The meeting will be held at 8:00 P. M. at The Chemists' Club, 52 East 41st Street, New York, N. Y.



The first unit of the Seaford plant of the E. I. du Pont de Nemours and Company began operation on December fifteenth, for the commercial manufacture of Nylon. This unit of the plant is one fifth of a mile long, three hundred feet wide, and from one to six stories high. Its cost was eight and a half million dollars. The remainder of the plant will be completed within the next four months, with a total of eight hundred and fifty employees.

Among the members who represented THE AMERICAN INSTITUTE OF CHEMISTS at its booth at the Seventeenth Exposition of Chemical Industries held in New York, December fourth to ninth, were: M. R. Bhagwat, Harry W. Charlton, Margaret Haight, Edward S. Johnson, Raymond E. Kirk, Harry G. Lindwall, Charles A. Marlies, Robert J. Moore, John E. Schott, and W. D. Turner.

Willard Gibbs Medal

Vladimir N. Ipatieff, F.A.I.C., director of research for Universal Oil Products Company, Chicago, Ill., has been awarded the 1940 Willard Gibbs Medal, which was founded by William A. Converse, according to a recent announcement of The American Chemical Society. Dr. Ipatieff is internationally known for chemical discoveries in petroleum refining and in the organic synthesis of artificial rubber. He is the author of more than two hundred and fifty scientific articles and three books.



Paul John Witte, F.A.I.C., formerly with Lucius Pitkin, Inc., is now chief of the Bureau of Standardization, Central Testing Laboratory, Department of Purchase, of the City of New York.



Wilhelm Segerblom, F.A.I.C., head of the Department of Chemistry at Phillips Exeter Academy, Exeter, New Hampshire, recently returned from a trip to the Pacific Coast, from Seattle to San Diego, including a two thousand mile auto trip through Death Valley, Montezuma Castle, and the Indian Country, where Dr. Segerblom added to his collection of rocks and minerals.

The seventeenth Exposition of Chemical Industries held in New York, December 4-9, 1939, reported a registered attendance of over 43,000, slightly less than that of two years ago, due to the rigid exclusion of curiosity seekers, students, etc. Exhibitors reported that the Exposition was successful, and the Exposition contained more exhibitors, more space, and more new products than any year since 1931.



The Fertilizer Research Division, in which there are many members of the Washington Chapter of the INSTITUTE, has been transferred from the Bureau of Agricultural Chemistry and Engineering to the Bureau of Plant Industry, Department of Agriculture.

"One of the civic duties incumbent upon all scientific men in common with other citizens is to support vigorously but critically the nascent movement toward organizing all the intelligence we possess for constructive study of social problems before they become pressing emergencies The most urgent item in the unfinished business of science is to increase knowledge of human behavior".—Dr. Wesley C. Mitchell, retiring president of the American Association for the Advancement of Science.



Norris W. Matthews, F.A.I.C., is now chemist for Teeple and Hofferbert, Inc., distributors for Endo Products, Inc., Baltimore, Maryland.

EMPLOYMENT

Chemists Available

CHEMIST, 42, Ph.C., F. A. I. C., American born, experience in chemical and pharmaceutical products, foods, specialties, etc. Able to handle analytical, research, production cost and supervision. Miscellaneous pharmaceutical compounding, medicinal and chemical preparations, a specialty. Writer is known for technical publications in the U. S. and abroad. Out of position on account of abandonment of plant with which he had been affiliated for past ten years. Excellent references. Please reply to Box 53, THE CHEMIST.



METALLURGICAL ANALYST, F.A.I.C. Long experience in analysis of iron, steel, ferrous and non-ferrous alloys. Can take charge of laboratory. Please reply to Box 113, THE CHEMIST.

PHYSICAL CHEMIST, F.A.I.C., with industrial experience in electronics and fluorescent materials. Three years' teaching experience during depression. Fairly at home in the French language. Ph.D., Cornell, 1928. Report of Stevens Human Engineering Laboratory available. Location in metropolitan New York desired. Employed but looking for broader job. Please reply to Box 91, THE CHEMIST.



CHEMIST, Ph.D., F.A.I.C., seeks position in industrial research or teaching. Major field organic. Eleven years' experience teaching organic, analytical and advanced inorganic in university. Some direction of research and consulting work. Age 33, married. Phi Beta Kappa, Sigma Xi, Phi Lambda Upsilon. Please reply to Box 53, THE CHEMIST.

BIOCHEMIST, F.A.I.C., A.M. degree. Several years' experience in protein research. Particularly interested in the practical utilization of proteins from by-products. Please reply to Box 111, THE CHEMIST.

BIOLOGIST. B.A. degree 1939. Seeking position as laboratory assistant. Knows French and Swedish. Summer experience with Marine Biological Laboratory. Please reply to Box 121, THE CHEMIST.

FOOD AND DRUG CHEMIST, F.A.I.C., Ph.D. Formerly superintendent of manufacture of drug products; teaching experience in food and drug analysis; consultant on food and drug labels. Chief chemist in brewing manufacture; bacteriology and research on methods in brewery. Successful in handling men. Has published twenty-two papers. Listed in *American Men of Science*. Expert witness in court cases. Please reply Box 123, THE CHEMIST.

Positions Available

TWO CHEMICAL ENGINEERS. Experienced in process design for light ends in petroleum distillation industry.

CHEMIST with considerable experience in research and development in paint manufacture. \$3600.

CHEMIST for miscellaneous metal and gas analyses. \$1800 up.

CHEMICAL ENGINEER. Experienced in production of heavy chemicals. Location East.

PH.Ds. in biological chemistry or organic. Recent graduates or with experience in development.

For the above positions, please reply to Box 122, THE CHEMIST.



The Washington D. C. Chapter of THE AMERICAN INSTITUTE OF CHEMISTS announces that the second luncheon of the season will be held on Tuesday, January 9, 1940, in the South Building of the U. S. Department of Agriculture. A report will be given by the Issues and Objectives Committee.

Watson Davis, Director of Science Service, will speak on the subject, "The Public's Way to Science." Science in the world today, the modern trends and their implications will be considered.

J. W. E. Harrison, F.A.I.C., was re-elected president of the Pennsylvania Chemical Society at its first annual meeting held December 15, 1939, at Harrisburg, Pennsylvania.



The Metropolitan Section of The Electrochemical Society will meet in Havemeyer Hall, Columbia University, New York, on January 19, 1940, at 8:15 p. m. The speaker will be H. Jermain Creighton, F.A.I.C., president of the Electrochemical Society, who will speak on "The Electrochemical Reduction of Sugars."

How to handle today's problems in organic synthesis . .

What are the problems of organic synthesis that arise in actual plant practice? What are the techniques employed? Twelve specialists present in this up-to-date manual a systematic treatment of the principles and practice of reactions in organic synthesis in a practical way.

UNIT PROCESSES in ORGANIC SYNTHESIS

Edited by P. H. GROGGINS

Bureau of Chemistry and Soils, U. S. Department of Agriculture

769 pages, illustrated, \$6.00

IN THIS book the term *unit processes* is used to represent the embodiment of all the factors in the technical application of an individual reaction in organic synthesis. The book codifies the underlying principles and factors. In discussing each reaction it presents: 1.—an examination of the reactants; 2.—an inquiry into the mechanism of the reaction; 3.—a description of the chemical and physical factors involved; 4.—observations regarding the design and construction of equipment; 5.—a study of typical technical applications. As the Editor says in his Preface: "Once the principles are mastered, it matters little in what branch of chemical technology these processes are carried out."

This revised edition—the work of eleven well-known specialists—contains much new material on new developments in the field such as synthetic gasoline, cellulose ethers, and alkyl phenols. There is increased emphasis on developments in aliphatic chemistry.

Copies may be obtained from

THE CHEMIST

233 BROADWAY

NEW YORK, N. Y.

ROSTER *of* MEMBERS

The April, 1940, issue of THE CHEMIST will contain the names, positions, and business addresses of members of THE AMERICAN INSTITUTE OF CHEMISTS. This list was previously scheduled for the January issue but was postponed in order to have the roster come out at the beginning of our fiscal year, May 1, 1940, and thus to include the names of all members elected up to that time.

Members are requested to assist us in making this list as accurate as possible by filling in and returning to the Secretary the following coupon. If we do not receive this coupon or other notification, your name will appear in the new roster as it appeared in that issued on January 1, 1939. We shall appreciate your prompt coöperation.

HOWARD S. NEIMAN, *Secretary*,
233 Broadway,
New York, N. Y.

Please enter the following information in the roster of
THE AMERICAN INSTITUTE OF CHEMISTS:

Name

Business position

Firm by which employed

Business address

Objectives of the AMERICAN INSTITUTE of CHEMISTS

To give chemists professional solidarity.

To put the profession back of a definite code of ethics.

To insist on adequate training and experience qualifications.

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